AMENDMENTS TO THE CLAIMS

Please substitute claims 1-14 for the pending claims with the same numbers, respectively:

Claim 1 (Currently amended): A system comprising:

an induction machine with a stator and a rotor, said stator having a plurality of phase windings;

an inverter having a plurality of solid-state switches with appropriate controls and having the same number of phases as said induction machine, said inverter being connected to selectively energize said windings; and

a programmable microprocessor operatively connected to said inverter and including a program for controlling said inverter that includes means for operating said induction machine using pole phase modulation to ~~simultaneously~~ change the number of stator and rotor poles to a plurality of pole combinations.

Claim 2 (original): A system according to claim 1, wherein said program operates to control the induction machine as a generator.

Claim 3 (original): A system according to claim 1, wherein said program operates to switch control of said induction machine between a motoring operation mode and a generating operation mode, each of said operation modes operates said induction machine with a desired number of poles.

Claim 4 (original): A system according to claim 2, wherein said program operates to switch control of said induction machine between a motoring operation mode and a generating operation mode, each of said operation modes operates said induction machine with a desired number of poles.

Claim 5 (original): A system according to claim 1, wherein said stator is a toroidally wound stator.

Claim 6 (original): A system according to claim 1, wherein said rotor is a squirrel cage rotor.

Claim 7 (original): A system according to claim 1, wherein said stator is a toroidally wound stator and said rotor is a squirrel cage rotor.

Claim 8 (original): A system according to claim 1, wherein said programmable microprocessor is a digital signal processor.

Claim 9 (previously amended): A system according to claim 1, wherein said microprocessor further includes means for controlling said inverter by vector control.

Claim 10 (original): A system according to claim 1, further comprising a position sensor operatively connected to said induction machine for providing a position indication that is indicative of a relative position of said rotor and said stator.

Claim 11 (Currently amended): A system comprising:

an induction machine with a stator and a rotor, said stator having a plurality of phase windings;

a position sensor operatively connected to said induction machine for providing a position indication that is indicative of a relative position of said rotor and said stator;

an inverter having a plurality of solid-state switches with appropriate controls and having the same number of phases as said ~~toroidal~~ induction machine, said inverter being connected to selectively energize said windings; and

a programmable microprocessor operatively connected and including a program to implement vector control of said induction machine, said microprocessor includes means for controlling said inverter so that said induction machine operates with pole phase modulation to change the number of stator and rotor poles to a plurality of pole combinations.

Claim 12 (original): A system according to claim 11, wherein said program operates to switch control of said induction machine between a motoring operation mode and a generating operation mode, each of said operation modes operates said induction machine with a desired number of poles.

Claim 13 (original): A system according to claim 11, wherein said stator is a toroidally wound stator and said rotor is a squirrel cage rotor.

Claim 14 (Currently amended): An automotive propulsion system including a system comprising:

an induction machine with a toroidally wound stator and a squirrel cage rotor, said toroidally wound stator having a plurality of phase windings;

a position sensor operatively connected to said induction machine for providing a position indication that is indicative of a relative position of said rotor and said stator;

an inverter having a plurality of solid-state switches and a control system, said inverter having the same number of phases as said toroidal induction machine, said inverter being connected to selectively energize said windings; and

a programmable digital signal processor operatively connected to said induction machine, said programmable digital signal processor including a program to implement vector control of said induction machine, said programmable digital signal processor includes means for controlling said inverter so that said induction machine operates with a predetermined number of poles using pole phase modulation to change the number of stator and rotor poles to a plurality of pole combinations.